

both under the same or equal Angles) that near the *Horizon* is fancied the greater. And this I judge to be the true Reason of that Appearance.

You will excuse (I hope) what Excursion I have made; because though some of them might have been spared, as to the present Case; yet they are not impertinent to the Business of Vision; and the Estimate to be thence made, of *Magnitudes* and *Distances*, by the Imagination.

The Sun's Eclipse *May 1st*, was here observed about $\frac{1}{2}$ a Digit; between one and two a Clock after Noon.

Account of a BOOK.

*A Continuation of the New Digest of Bones:
Its Improvements and new Uses it hath been
apply'd to, both at Sea and Land.*

*Together with some Improvements and new Uses
of the Air-Pump, tryed both in England and
Italy. By D. Papin, M. D. Fellow of the
Royal Society.*

THIS Treatise is divided into three Sections; the first contains the Improvements made by the Author on the Digest; with the new Uses it hath been apply'd to. First is given the Description of that which he had made for His Majesty King *Charles the 2d.* of blessed Memory; and he doth not think (considering the Alterations whereby this exceeds the first Invention) that any thing better can be made for such things, as must be stew'd in their own Juices: But for other things that must be boil'd with Water, as Pulse, Gellies, &c. He gives the Description of another Engine, which he finds to be, for seven
Rea-

Reasons, preferable to the other; so as that a small Engine of this Fashion, if it holds but 6 or 7 Pounds of Water, will be enough to make 150 Pounds of Gelly in 24 Hours, and will not consume above 11 Pounds of Charcoal. He doth afterwards relate the new Uses this Engine hath been apply'd to, but for brevity's sake, I will mention but one that seems to be very considerable. He hath tryed, that Bones being as much salted as Bones can be, if they be left to soak in Sea-Water, as they do for the Meat at Sea, they will be fit to make fresh Gelly several times: So that all the Bones that are thrown away as useless in long Voyages, may henceforth serve to make a Food wholesomer and better, than the Meat itself. The Author doth afterwards relate, how these Gellies may be applyed for the preserving of Summer Fruits: Upon this he alledgeth many Experiments, which give him Occasion to make several Observations; as for Example, he saith that *Strawberries* that are brought up by Art in the latter Season, have much less Spirits, than those that ripen in the Spring of the Year: So that some *Strawberries* which he had thus shut up in the Month of *October*, became very sower in 3 Months time; whereas other *Strawberries* which he shut up in the Month of *June*, having been kept 8 Months, were not sower at all, but had given a Vinous Taste to the Gelly: He doth afterwards impart his Way for making and clarifying Gellies, which hath given him Occasion to contrive two Engines for filtrating quickly, and a Contrivance how to make Evaporations quicker, and with less Fire than they use to be done, and these are very plainly described in the Book. He gives also the Description of an Engine for distilling *per descensum* in several Degrees of Rarefaction and Condensation of Air; and he gives an Account of some Experiments which he hath already made with this Instrument, from whence it appears, that in some Cases the Condensation of the Air will be of great Advantage for a quick Distillation.

In the second Section are explain'd the Improvements made by the Author, on the *Pneumatick* Engine; and he doth not think, that ever any hath been so good as his: he gives a full Description of it, and takes Notice of all that contributes to its exactness; and he relates some Experiments that he hath made to prove his Assertion: He doth by the by, Answer Mr. *Bernoulli*, who hath written something against the Honourable Mr. *Boile*, about the weighing of the Air in a Bladder; and afterwards he comes to the new Uses this Engine hath lately been apply'd to; whereof I will mention but this, that seems to be of great Moment, because without any Sugar or any other alteration, than what can be made by a little boiling, he can preserve great Quantities of Fruit with their Taste: The Way is this; he shuts up the Fruits in Glass Vessels exhausted of the Air, and then puts the Vessel thus exhausted in hot Water, and lets it stand there for some while; and that is enough to keep the Fruit from the Fermentation, which otherwise would undoubtedly happen: Yet it is observable, that this is not generally true: but that it is good to have several ways for the preserving of Fruit: *Rasberries*, for Example, that keep in Gelly better than any other Fruit, cannot be preserved although they be heated *in vacuo*. Such or the like Observations are annexed to almost every Experiment, at the latter end of this Section, the Author answers such Objections as may be brought against the real usefulness of these Engines; whereupon he describes a Way how to exhaust the Air very speedily out of great Vessels, to be kept thus exhausted as long as we please.

The third Section gives a Relation of what hath been done in two Years time, in Mr. *Sarrotti's* Academy at *Venice*; which had some Relation to the Matter treated of in this Book: There may be seen several new and curious Experiments about Matters of Moment: But I shall only relate two of them, from whence the reader may judge

of the rest; the first is, that two equal pieces of *Iron* were put at the same time into two equal Quantities of *Aqua-fortis*, the one *in vacuo*, and the other in the open Air; and being afterwards taken out at the same time; it was found that the *Iron* in the open Air, had been 16 times more dissolved than the *Iron in vacuo*.

The second Experiment is, that two equal Quantities of *Roses* were put into two Instruments for Distillations, like one another; but the one was exhausted of Air, and the other was full; the Distillation was abundantly greater and quicker in the evacuated Instrument, than in the other, although they were both heated by the same warm Water; it was also observable, that the *Rose Water* distilled *in vacuo* did congeal, which doth not happen in ordinary Distillations: So it is plain, that in some Circumstances, the *Vacuum* helps Distillations; as well as in the first Section it was seen, that in other Circumstances the compression of Air is more advantageous. In this whole Section are intermixed the reasonings of the Academy, about the Matters in hand, and two Discourses made in the Academy, by *Sigr. Ambrosio Sarrotti* in the beginning of each Year: So the Reader may here be diverted as well as instructed in the Operations of Nature. It may be said in short, that it is rare to see a Book, that in so small a Volume doth contain so many things recommendable, both for Usefulness and Novelty; but no Wonder, since it is owing to the Instructions and Directions of the R. S. as the Author acknowledgeth in his *Epistle*, which he inscribeth to my Lord of *Carbery*, President of that Illustrious Company. Nevertheless, the better to convince those that would question either the Truth, or the Usefulness of the Contents of his Book; the Author engageth to let People see them try'd once a Week, and he appoints a certain Time and Place for that Purpose.

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